

REMARKS

Prior to entry of this amendment, claims 1-14 are currently pending in the subject application. By the instant amendment, claims 8-14 are canceled as being directed to a non-elected group. Applicants, of course, reserve the right to prosecute the subject matter of these claims in a divisional application.

Applicants appreciate the Examiner's acknowledgement of applicants' claim for foreign priority and receipt of a certified copy of the priority document.

Applicants kindly request that the Examiner acknowledge the acceptability of the drawing figures filed July 14, 2003, in the next Office action.

Applicants appreciate the Examiner's consideration of the Information Disclosure Statement filed July 14, 2004.

Applicants further appreciate the Examiner's indication that claims 5 and 6 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-7 are presented to the Examiner for further prosecution on the merits.

A. Introduction

In the outstanding Office action, the Examiner rejected claims 1-4 and 7 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,642,125 B2 to Oh et al. ("the Oh et al. reference") and objected to claims 5 and 6 as being dependent upon a rejected base claim, but indicated that claims 5 and 6 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

B. Asserted Rejections Under 35 U.S.C. § 102(e)

In the outstanding Office action, the Examiner rejected claims 1-4 and 7 under 35 U.S.C. § 102(e) as being anticipated by the Oh et al. reference. This rejection is respectfully traversed. Applicants respectfully submit that the subject invention as presently claimed is patentably distinct from the cited prior art reference for at least the following reasons.

Applicants respectfully submit that, in the outstanding Office action, the Examiner's discussion of calculation of an aspect ratio in the context of the present invention is inaccurate. Specifically, in footnote 1, the Examiner stated: "The aspect ratio, in the present interpretation of the claims, is the ratio that results from dividing the trench width by the trench depth." *Office action of Sept. 7, 2004, at p. 4, fn. 1.* According to the Examiner's interpretation, a first trench having a narrower width and a same depth as a second trench would have a smaller aspect ratio than the second trench. On the contrary, paragraph [0025] in conjunction with FIG. 2 of the original specification, defines an aspect ratio of a trench as trench depth, e.g. 'a' of trench 201, divided by trench width, e.g., 'b' of trench 201. Accordingly, referring to FIG. 2, a first trench 201 is narrower than a second trench 203 and a third trench 205, and has a greater aspect ratio than either of the second and third trenches, since all of the trenches have the same depth.

Based on the above discussion of aspect ratio, it may be seen that FIG. 3E of the Oh et al. reference, which the Examiner referenced as teaching the structure of the present invention, discloses forming three (3) insulation materials, i.e., 108, 110 and 114, in a trench having a greater aspect ratio, i.e., the narrower trench in the cell region A1, and discloses forming only two (2) insulation materials, i.e., 108 and 114, in a trench having a smaller aspect ratio, i.e., the wider trench in the peripheral region A2.

More specifically, in the outstanding Office action, the Examiner stated the Oh et al. reference discloses “a second region of the substrate having a second trench (106a), the second trench having a second aspect ratio smaller than the first aspect ratio.” *Office action of Sept. 7, 2004, at p. 3.* It is respectfully submitted that this statement is not accurate in view of the above discussion regarding aspect ratio. In particular, in the Oh et al. reference, the second trench 106a is narrower than the first trench 106b, and, as such, has a greater aspect ratio than the first trench.

Contrary to the Oh et al. reference, claim 1 of the subject application recites two (2) insulation materials, i.e., 307a and 307b, in a first trench having a greater aspect ratio, i.e., the narrower trench in the cell region as shown in FIG. 3, and three (3) insulation materials, i.e., 309a, 309b and 309c or 310a, 310b and 310c, in a second trench having a smaller aspect ratio, i.e., a wider trench in the peripheral region as shown in FIG. 3.

Thus, the Oh et al. reference discloses first and second trenches in a cell region and in a peripheral region including insulation materials exactly opposite to the first and second trenches including insulation materials as recited in the present invention. Therefore, it is respectfully submitted that the Oh et al. reference fails to disclose or even suggest first and second trenches including insulation materials according to the aspect ratio of the trench as presently recited in claim 1 of the subject application.

Accordingly, claim 1 is believed to be in condition for allowance, and a notice to such effect is respectfully requested. Further, because the remaining claims, viz. claims 2-4 and 7 depend, either directly or indirectly, from claim 1, claims 2-4 and 7 are believed to be similarly allowable as depending from an allowable base claim.

Accordingly, reconsideration and withdrawal of the rejections of claims 1-4 and 7 are respectfully requested.

C. Allowable Subject Matter

In the outstanding Office action, the Examiner objected to claims 5 and 6 for depending from a rejected base claim, but indicated that claims 5 and 6 would be allowable if rewritten in independent form, and to include all of the limitations of the base claim and any intervening claims.

As claims 5 and 6 depend, directly and indirectly, respectively, from claim 1, which is believed to be allowable, claims 5 and 6 are believed to be similarly allowable as depending from an allowable base claim.

Accordingly, withdrawal of the objection to claims 5 and 6 is respectfully requested.

D. Conclusion

Since the cited prior art reference neither anticipates nor renders obvious the subject invention as presently claimed, applicants respectfully submit that claims 1-7 are now in condition for allowance, and a notice to that effect is respectfully requested.

The remaining documents cited by the Examiner were not relied on to reject the claims. Therefore, no comments concerning these documents are considered necessary at this time.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.